

REMARKS

Claims 1-3 were originally filed in the application. Claims 4-63 were added by amendment in the Reissue Application. Claims 20-23, 40-48, and 50-63 were withdrawn from consideration by the Examiner. Claims 4-19, 24-39, and 49 were cancelled in a previous amendment. Claims 64-95 were added in a previous amendment. Claims 65, 80-91 and 94 are cancelled without prejudice in this amendment. Claim 1-3, 64-79, 92-93, and 95 are pending.

In the Office Action, claim 94 is rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. While Applicant respectfully submits that programming a processor to perform trajectory calculations to estimate a crash site, when aircraft velocity, position, and attitude are known, in light of the disclosure in the specification coupled with what was well known in the art at the time of the invention, is well within the skill level of one of ordinary skill in the art, claim 94 has, nonetheless, been cancelled without prejudice.

In the Office Action, claims 1-3, 64-65, 69-74, 78-80, and 84-91 are rejected as being unpatentable over Smith, et al. (U.S. Patent No. 5,931,877) in view of Kuroda, et al. (U.S. Patent No. 5,381,140).

Per claims 1, 2, and 3, Applicant respectfully submits that the combined teachings of Smith, et al. and Kuroda, et al. do not disclose all of the limitations of claims 1, 2, and 3. In both the previous Office Action (which was incorporated by reference into the present Office Action) and the present Office Action, the requirement of a "configuration label" was overlooked.

Neither Smith, et al. nor Kuroda, et al. disclose the transmission of a configuration label along with aircraft performance and control parameters. Aircraft configuration is used in generating advisories transmitted back to the aircraft (Col. 8, lines 39-40).

Accordingly, claims 1-3 are in condition for allowance. Reconsideration and allowance of claims 1-3 are respectfully requested.

Per claim 64, in the previous Office Action it was asserted that the data recorder of claim 5 (now independent claim 64 with the limitations of claim 5 and the intervening claim from which claim 5 depended) is taught in Col. 4, lines 37-40 of the Smith, et al. reference. Smith, et al. actually discloses retrieving data from a removable cartridge or module, off-line during the pilot debrief. This is inconsistent with claim 64 which requires the transmission of the performance and control data while in-flight.

The Merriam-Webster Online Dictionary¹ describes real time as: "the actual time during which something takes place." In response to the previous Office Action, Applicant argued that the present invention analyzes the performance data and generates advisories in *real-time* (a limitation of claim 64) as opposed to the Smith, et al. system which only performs fault isolation and maintenance information after a built-in-test has failed. In the present Office Action, the Examiner "strongly disagrees with such allegations" and in reply cites numerous locations where the term "real time" is used. Addressing each of these cites individually, at Col. 3, lines 60-64,

¹ www.m-w.com

the term "real time" refers to "communication and transmittal of technical information and data, plus initialization and population of repair/work orders" to a terminal or PMA. There is no disclosure of analysis of in-flight performance data or the generation of a maintenance advisory in real time. Thus, Smith, et al. uses the term "real time" to refer to the communication, transmittal, initialization, and population relative to operation of the PMA or desktop computer, as contrasted to the present invention where "real time" indicates relation to in-flight performance or as a failure occurs.

At Col. 4, lines 21-27 the term "real time" is used in connection with the downloading of maintenance procedures, illustrations, and parts lists relative to the operation of the PMA, not relative to the occurrence of the failure which actually caused the built-in-test to fail. Certainly real time does not relate to in flight. At Col. 4, lines 63-65, Smith, et al. use the term "real time" to describe the system's satellite communication ability. There is no mention of performing analysis of performance data in real time or even a hint that real time could refer to operation of the aircraft, i.e. in-flight.

At Col. 5, lines 45-50, Smith, et al. does not use the term "real time" to but does disclose providing instruction directly to technicians performing test on the aircraft or weapon. Assuming, for the sake of argument, that the discussion describes real time communication, such communication is relative to troubleshooting by the technicians, not relative to operation of the aircraft. At Col. 5, lines 61-65, the description would suggest that information is sent in real

time relative to a request for information. Again, certainly not relative to operation in-flight and can be contrasted to the present system wherein advisories are provided in a spontaneous manner, not upon a request from a technician.

At Col. 6, lines 49-54 the term “real time” describes population of the database relative to initiation and completion of repair actions. Further, the Smith, et al. system provides “real time analysis of **reliability and maintainability factors**” (emphasis added). This is not real-time analysis of performance data to generate a maintenance advisory while the aircraft is operational. Instead it describes calculation of reliability and maintainability factors based on performed repairs.

Finally, the Office Action cites Col. 10, lines 52-54 (claim 6 of Smith, et al.) as teaching analysis at the central data warehouse and generating a maintenance advisory in real time. While claim 6 is clearly drawn to the “guided probe” disclosure of Col. 6, lines 2-5, neither claim 6 nor its support in the specification indicate that the guided probe test is conducted in real time and certainly not while in flight.

None of the “real time” cites provided in the Office Action indicate that any portion of the Smith, et al. disclosure refer to in flight analysis or that any “real time” reference is made relative to operation of the aircraft as required by claim 64.

While Applicant disagrees with the Examiner that the Smith, et al. system provides analysis and maintenance advice in real time, as used in claim 64, out of an abundance of

caution, claim 64 has been amended to remove any ambiguity that the term "real time" is used relative to operation of the aircraft.

Accordingly, Applicant respectfully submits that claim 64 is now in condition for allowance. Claims 66-68 and 70-74 depend from claim 64 and, at least for the reasons stated with regard to claim 64, are likewise in condition for allowance. Reexamination and allowance of claims 64 and 66-74 are respectfully requested.

In the Office Action, claim 75 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith, et al. and Kuroda, et al. in further view of Monroe (U.S. Patent No. 5,798,458). It should be noted that claim 75 has been amended to require in flight communication of performance data. This requirement is inconsistent with Smith, et al., which provides maintenance information after a failure has been detected by a built-in-test, which is consistent with operation on the ground, rather than in flight. Smith, et al. describes the satellite communication as utilizing "low-cost commercial **ground** stations incorporating Very Small Aperture Terminals (VSAT) with 1 to 2 meter antennas" (emphasis added) (col. 4, lines 59-64). Further, Smith suggests that high speed land lines could also be used exclusively, or in combination with, the satellite (Col. 5, lines 39-43). Smith, et al. clearly describes a system intended for use while the aircraft is in maintenance, on the ground² and makes no disclosure of data collection while the aircraft is operational, as required by claim 75.

² A previously mentioned factor of Smith, et al. which indicates ground based operation is off-line retrieval of

Applicant respectfully submits that claim 75 is in condition for allowance. Claims 76-77 depend from claim 75 and, at least for the reasons stated with regard to claim 75, are likewise in condition for allowance. Reexamination and allowance of claims 75-77 are respectfully requested.

As per claims 78 and 79, the claims have been amended to: 1) clarify that the nature of "real time," as used in the preamble of the subject claims, is relative to operation of the aircraft; and 2) to restrict various steps of the inventive method such that the steps must be performed while the aircraft is operating. As discussed hereinabove, Smith, et al. does not disclose off-aircraft monitoring of performance parameters while the aircraft is in operation.

Accordingly, Applicant submits that claims 78 and 79 are now in condition for allowance. Reexamination and allowance of claims 78 and 79 are respectfully requested.

In the Office Action, claims 92 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda, et al. in view of Monroe (incorporating the analysis of the previous Office Action by reference as per claim 36). As per claim 92, it is asserted that Kuroda, et al. discloses the transmission and reception of aircraft performance and control parameters and the storage thereof. Further, "that it would have been readily apparent for one skilled in the art that in the event of a crash, the data stored in the storage device in Kuroda et al would have become a 'crash data recorded' as claimed." Applicant respectfully submits that: 1) the storage disclosed in

Kuroda, et al. is only used to calculate a predicted or theoretical track and there is no disclosure of long term storage; and 2) to extrapolate archival of data as in a crash data recorder requires impermissible hindsight.

In Kuroda, et al. the storage shown in FIG. 3, the monitor file (a/k/a "track file") provides storage for data necessary to predict a theoretical path of the aircraft, not long term storage of performance and control parameters as asserted in the Office Action. The theoretical path is simply used to qualify incoming data at the ground station (*see*, for example, Col. 3, lines 11-18, Col. 4, lines 30-40). There simply is no disclosure of archival of performance and control data as would be necessary for a crash data recorder, or for that matter, Kuroda, et al. does not disclose the storage of any data for any purpose, except that used to predict a track and certainly, under the disclosure of Kuroda, et al. there is no need to store any of that data after the aircraft completes its course.

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of hindsight syndrome wherein that which only the invention taught is used against its teacher."³

³ *In re Kotzah*, 208 F.3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000)(quoting *W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983))(citations omitted).

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Since Kuroda, et al. does not teach archival or use of the incoming data for any purpose other than tracking, the Office Action clearly relies on the present invention itself to supply the missing pieces. Only the present invention teaches the archival of aircraft performance and control information to remotely provide the functions of a crash data recorder.

Applicant respectfully submits that claim 92 is now in condition for allowance. Claims 93 and 95 depend from claim 92 and, at least for the reasons stated with regard to claim 92, are likewise in condition for allowance. Reexamination and allowance of claims 92-93 and 95 are respectfully requested.

No additional fee is believed to be due. However, if any fee is made payable by the filing of this paper, please consider this our authorization to charge the Deposit Account of the undersigned, No. 06-0540.

Respectfully submitted,

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